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10/593,974	09/22/2006	Takenori Sakamoto	L9289.06203	5618

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EXAMINER
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GUARINO, RAHEL

ART UNIT	PAPER NUMBER
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2611

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,974	<b>Applicant(s)</b> SAKAMOTO ET AL.	
	<b>Examiner</b> RAHEL GUARINO	<b>Art Unit</b> 2611	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,7,8,10,11 is/are rejected.
- 7) ☒ Claim(s) 4-6 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

**The abstract should be in narrative form and generally limited** to a single paragraph on a separate sheet **within the range of 50 to 150 words**. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it exceeds 150 words.

Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

((e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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**4. Claims 1,10,11 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishii et al. US 7,363,057**

Re claim 1, Ishii discloses a communication apparatus comprising (fig.3):

a propagation path condition estimation section (*communication path estimation section;25*) that estimates speed of a change (*based on the moving speed of the mobile station for a predetermined time; see fig.6 and col. 9 lines 14-30*) in a propagation path condition (*col. 7 lines 51-60*);

a communication quality estimation section (*quality estimation section; 27*) that changes a method of estimating the communication quality based on the speed of the change in the propagation path condition (*fig.4 shows the quality estimation section; col. 8 lines 8-45. The received signal is delayed (delay devices) depending on the path timing (for ex: predetermined time of the moving speed of the mobile station) and inputted into the despreaders 272-1 to 272-k (where K=numbers of multipaths) and estimates communication quality (col. 8 lines 1-8)*);

a transmission section (*Tx;29*) that transmits the communication quality estimated in the communication quality estimation section to a communicating party (*base station; the estimated quality signal is combined with signal combining section (280 and is transmitted using transmitter (29) to the base station; col. 8 lines 45-51)*);

a reception section (*Rx;23*) that receives data modulated in a modulation scheme determined based on the communication quality by the communicating party (*base*

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*station; the base station (fig.5) determines modulation and coding (17) based on the received signal (quality information) from the mobile station. The base station transmits (19) the resulting transmission information to the mobile station; col. 8 lines 59 to col. 9 lines 8); and a demodulation section that demodulates the data (col. 7 lines 60-64).*

Re claim 10, Ishii discloses a communication method (fig.3 and fig.5), wherein:

*a receiving side (communication path estimation section; 25) estimates speed of a change in a propagation path condition (col. 7 lines 51-60), changes (channel selection; 24) a method of estimating communication quality based on the speed of the change in the propagation path condition (col. 7 lines 64 to col. 8 lines 3) , estimates communication quality (quality estimation section; 27; col. 8 lines 4-8 and fig.4 shows the structure of the quality estimation section), and transmits (Tx;29) information of the estimated communication quality and information of the speed of the change in the propagation path condition to a transmitting side (the estimated quality signal is combined with signal combining section (280) and is transmitted using transmitter (29) to the base station; col. 8 lines 45-51);*

*the transmitting side (duplexer;14) receives the information of the communication quality and the information of the speed of the change in the propagation path condition transmitted from the receiving side (the estimated quality signal is combined with signal combining section (280) and is transmitted using transmitter (29) to the base station; col. 8 lines 45-51), sets a criterion (judging whether or not the received signal from the mobile station has changed) to select a modulation scheme of a signal to be transmitted to the receiving side from a plurality of modulation*

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schemes based on the information of the speed of the change in the propagation path condition (*fig.7 shows the steps of judging by the base station ;col. 9 lines 34 to 39*), selects the modulation scheme (17) based on the set criterion and the communication quality of a signal received at the receiving side (*col. 9 lines 40-45*), modulates data in the selected modulation scheme (*col. 9 lines 36-39 and col. 9 lines 40-45*), and transmits the modulated data by a radio signal (*col. 9 lines 5-8*); and the receiving side (*antenna; 21*) receives the data modulated in the modulation scheme determined by the transmitting side (*The base station transmits (19) the resulting transmission information to the mobile station; col. 8 lines 59 to col. 9 lines 8*), and demodulates the data (*col. 7 lines 60-64*).

Re claim 11, Ishii discloses a communication method (*fig.3 and fig.5*), a receiving side (*communication path estimation section 25 of the receiver*) estimates speed of a change in a propagation path condition (*col. 7 lines 51-60*), estimates (*quality estimation section; 27*) communication quality (*col. 8 lines 4-8 and fig.4 shows the structure of the quality estimation section*), changing an estimation method based on the speed of the change in the propagation path condition (*col. 10 lines 35-40*), sets a criterion (*checking whether or not the reception quality has changed*) to select a modulation scheme of a signal for a transmitting side to be transmitted to the receiving side from a plurality of modulation schemes based on the speed of the change in the propagation path condition (*col. 10 lines 30-34*);

selects a modulation scheme (*channel selection;24*) from the communication quality of a received signal by the set criterion, and transmits information indicating the selected modulation scheme to the transmitting side (*col. 8 lines 65 to col. 9 lines 8*);

the transmitting side (*duplexer;14*) receives the information of the communication quality and the information of the speed of the change in the propagation path condition transmitted from the receiving side (*the estimated quality signal is combined with signal combining section (280) and is transmitted using transmitter (29) to the base station; col. 8 lines 45-51*), modulates data in the selected modulation scheme (*col. 9 lines 36-39 and col. 9 lines 40-45*), and transmits the modulated data by a radio signal(*col. 9 lines 5-8*); and the receiving side (*antenna; 21*) receives the data modulated by the transmitting side (*base station transmitter (19)*) in the selected modulation scheme (*The base station transmits (19) the resulting transmission information to the mobile station; col. 8 lines 59 to col. 9 lines 8*), and demodulates the data (*col. 7 lines 60-64*).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. US 7,363,057 in view of Takano et al. US 7,308,015**

Re claim 3, the communication apparatus according to claim 1 making a length of a term for averaging the communication quality when the change in propagation path condition is fast longer than the length of the term for averaging the communication quality when the change in propagation path condition is slow, and averages the information of the communication quality to estimate.

However, Takano teaches making a length of a term for averaging the communication quality when the change in propagation path condition is fast longer (*col. 6 lines 15-20*) than the length of the term for averaging the communication quality when the change in propagation path condition is slow (*col. 6 lines 9-15*), and averages the information of the communication quality to estimate (*col. 10 lines 35-38*)

Therefore, taking the combined teaching of Ishii and Takano as a whole would have been rendered obvious to one skilled in the art to modify Ishii to change a length of a term for averaging the communication quality when the change in propagation path condition is fast longer than the length of the term for averaging the communication quality when the change in propagation path condition is slow, and averages the information of the communication quality to estimate for the benefit of selecting a base station among base stations having the best reception quality (*col. 8 lines 56-62*, Takano)

**7. Claims 2,7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. US 7,363,057 in view of Takano et al. US 6,985,752**



Re claim 2, Ishii discloses a communication apparatus comprising (fig.3):

a propagation path condition estimation section (*communication path estimation section; 25*) that estimates speed of a change (*based on the moving speed of the mobile station for a predetermined time; see fig.6 and col. 9 lines 14-30*) in a propagation path condition (*col. 7 lines 51-60*);

a communication quality estimation section (*quality estimation section; 27*) that changes a method of estimating the communication quality based on the speed of the change in the propagation path condition (*fig.4 shows the quality estimation section; col. 8 lines 8-45. The received signal is delayed (delay devices) depending on the path timing (for ex: predetermined time of the moving speed of the mobile station) and inputted into the despreaders 272-1 to 272-k (where K=numbers of multipaths) and estimates communication quality (col. 8 lines 1-8)*); does not teach a threshold setting section that sets a criterion to select a modulation scheme for use in communication with a communicating party from a plurality of modulation schemes based on information of the speed of the change in the propagation path condition; a modulation scheme selection section that selects a modulation scheme from the communication quality by the criterion set by the threshold setting section.

In the same field of endeavor, however, Takano discloses a threshold setting section (*15c*) that sets a criterion (*col. 10 lines 48-57*) to select a modulation scheme (*modulation-coding mode; 15*) for use in communication with a communicating party

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from a plurality of modulation schemes (64 QAM, 16QAM, QPSK) based on information of the speed of the change in the propagation path condition (*col. 9 lines 11-18*);

a modulation scheme selection (*modulation and coding unit (17)*) section that selects a modulation scheme from the communication quality by the criterion set by the threshold setting section (*col. 8 lines 63 to col. 9 lines 1-10*); and

a transmission section (19) that transmits information indicating the selected modulation scheme to the communicating party (*col. 9. lines 19-26*)

Therefore, taking the combined teaching of Ishii and Takano as a whole would have been rendered obvious to one skilled in the art to modify Ishii to implement Takano's threshold setting section that sets a criterion to select a modulation scheme for use in communication with a communicating party from a plurality of modulation schemes based on information of the speed of the change in the propagation path condition; a modulation scheme selection section that selects a modulation scheme from the communication quality by the criterion set by the threshold setting section for the benefit of selecting modulation and coding mode at an optimal transmission rate (*col.5 lines 1-5, Takano*).

Re claim 7, Ishii discloses a communication apparatus comprising (fig.3):

a reception section (*Rx;15*) that receives information of speed of a change in a propagation path condition estimated by a communicating party (*the estimated quality signal is combined with signal combining section (280 and is transmitted using transmitter (29) to the base station receiver ; col. 8 lines 45-51*); does not explicitly teach a threshold setting section that sets a criterion to select a modulation scheme of a signal

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to be transmitted to the communicating party from a plurality of modulation schemes based on the information of the speed of the change in the propagation path condition; a modulation scheme selection section that selects a modulation scheme based on the criterion set by the threshold setting section and reception quality of a signal received in the communicating party; and an adaptive modulation section that modulates data in the modulation scheme selected in the modulation scheme selection section; and a transmission section that transmits the modulated data by a radio signal.

In the same field of endeavor, however, Takano discloses a threshold setting section (15c) that sets a criterion (*col. 10 lines 48-57*) to select a modulation scheme (*modulation-coding mode; 15*) of a signal to be transmitted to the communicating party from a plurality of modulation schemes (64 QAM, 16QAM, QPSK) based on information of the speed of the change in the propagation path condition (*col. 9 lines 11-18*);

a modulation scheme selection (*modulation and coding unit (15)*) section that selects a modulation scheme based on the criterion set by the criterion set by the threshold setting section (*col. 9 lines 9-18*) and reception quality of a signal received in the communicating party (*col. 8 lines 63 to col. 9 lines 1-10*); and an adaptive modulation section (17) that modulates data in the modulation scheme selected in the modulation scheme selection section (*col. 8 lines 63 to col. 9 lines 1-10*); and a transmission section (19) that transmits the modulated data by a radio signal (*col. 9. lines 19-26*)

Re claim 8, the modified invention as claimed in claim 2, wherein the threshold setting section (15c) sets the criterion so that the modulation scheme is harder to be

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switched in a threshold when the speed of the change in the propagation path condition is fast than in a threshold when the speed of the change in the propagation path condition is slow (col.11 lines 1-18, Takano).

### ***Allowable Subject Matter***

8. Claims 4-6,9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rahel Guarino whose telephone number is (571)270-1198. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Payne David can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rahel Guarino/  
Examiner, Art Unit 2611

/David C. Payne/  
Supervisory Patent Examiner, Art Unit 2611